

CLAIMS

What is claimed is:

- 5 1. A pipe coupling device comprising:
 - a sleeve having an end adapted for receiving a pipe, said end of said sleeve having a sealing cavity defined between the outer surface of the pipe and the interior surface of said end;
 - a sealing gasket adapted for arrangement within said sealing cavity of said sleeve
- 10 for compression into sealing engagement with the pipe;
 - a gripper ring adapted for encircling the pipe, said gripper ring having a radial inner surface having a plurality of gripping members for gripping the pipe upon coaxial compression of said gripper ring;
 - an intermediate ring adapted for encircling the pipe between said sealing gasket
- 15 and said gripper ring, said intermediate ring having a restraining member adapted for restraining said gripper ring to prevent said gripping members of said gripper ring from gripping the pipe until after said sealing gasket is compressed into sealing engagement with the pipe;
- 20 a locking ring adapted for communication with said gripper ring; and
 - at least two tightening members adapted for connecting said sleeve and said locking ring to compressibly secure said gripper ring, said intermediate ring, and said sealing gasket to the pipe, such that upon the tightening of said tightening members said sealing gasket is compressed into sealing engagement followed by the gripping of the pipe by said gripper ring.
- 25 2. The pipe coupling device of Claim 1, wherein said restraining member comprises at least one break-off member adapted to break off from said intermediate ring after said sealing gasket is compressed into sealing engagement with the pipe.

3. The pipe coupling device of Claim 1, wherein said gripping members comprise inwardly extending teeth members.

4. The pipe coupling device of Claim 3, wherein said teeth members extend radially 5 inwardly to different heights.

5. The pipe coupling device of Claim 1, wherein said sleeve further comprises a flange having at least two bore holes defining apertures for receiving said fastener members.

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6. The pipe coupling device of Claim 1, wherein said locking ring includes at least two bore holes defining apertures for receiving said fastener members.

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7. The pipe coupling device of Claim 1, wherein said fastening members comprise bolts and nuts.

8. The pipe coupling device of Claim 1, wherein said locking ring has a radial inner slanted surface which surrounds and abuts said gripper ring.

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9. The pipe coupling device of Claim 1, wherein said gripper ring has a radial exterior surface, a portion of which is complementary to said radial inner slanted surface of said locking ring.

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10. The pipe coupling device of Claim 1, wherein said sealing gasket has a cross sectional shape of a filled figure eight.

11. The pipe coupling device of Claim 1, wherein said sealing gasket comprises a pair of O-rings.

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12. A pipe coupling device comprising:

a sleeve having an enlarged end, said enlarged end having a first internal diameter and a slanting wall leading to a smaller second internal diameter adapted for receiving a pipe, wherein a sealing cavity is defined between the outer surface of the pipe and the first internal diameter of the enlarged end;

5 a compressible sealing gasket adapted for arrangement within said sealing cavity of said sleeve for compression into sealing engagement with the pipe;

a gripper ring adapted for encircling the pipe, said gripper ring having a radial inner gripping surface with a predetermined inner diameter and a longitudinally extending slot to accommodate the subsequent reduction of said inner diameter of said gripper ring

10 and gripping of the pipe by said gripping surface upon coaxial compression of said gripper ring;

an intermediate ring adapted for encircling the pipe between said compressible sealing gasket and said gripper ring, said intermediate ring having a restraining member adapted for restraining said slot of said gripper ring to prevent the subsequent reduction 15 of said inner diameter of said gripper ring until after said compressible sealing gasket is compressed into sealing engagement with said pipe;

a locking ring adapted for communication with said gripper ring; and

at least two tightening members adapted for connecting said sleeve and said locking ring to compressibly secure said gripper ring, said intermediate ring, and said

20 sealing gasket to the pipe, such that upon the tightening of said tightening members said compressible sealing gasket is compressed into sealing engagement followed by the gripping of the pipe by said gripper ring.

13. The coupling device of Claim 12, wherein said restraining member comprises at

25 least one break-off member adapted to break off from said intermediate ring after said sealing gasket is compressed into sealing engagement with the pipe.

14. The coupling device of Claim 12, wherein said gripping surface comprises a plurality of gripping teeth extending radially inwardly.

15. The coupling device of Claim 14, wherein said plurality of teeth extend to different heights.

16. The coupling device of Claim 15, wherein said fastening members comprise bolts

5 and nuts.

17. A restraining assembly for a compression type pipe coupling, said pipe coupling

having a sleeve adapted for receiving a pipe, a sealing gasket adapted for arrangement

within said sleeve for compression into sealing engagement with the pipe, a gripper ring

10 adapted for encircling and gripping the pipe upon coaxial compression of said gripper

ring, a locking ring adapted for communication with said gripper ring, and at least two

tightening members adapted for connecting said sleeve and said locking ring to

compressibly secure said gripper ring and said sealing gasket to the pipe, wherein said

restraining assembly comprises:

15 an intermediate ring adapted for encircling the pipe between said sealing gasket and said gripper ring;

a restraining member carried by said intermediate ring, said restraining member adapted for restraining said gripper ring to prevent said gripper ring from gripping the pipe until after said sealing gasket is compressed into sealing engagement with the pipe;

20 wherein upon the tightening of said tightening members said sealing gasket is compressed into sealing engagement followed by the gripping of the pipe by said gripper ring.

18. The restraining assembly of Claim 17, wherein said restraining member comprises

25 at least one break-off member adapted to break off from said intermediate ring after said sealing gasket is compressed into sealing engagement with the pipe.

19. The restraining assembly of Claim 17, wherein said intermediate ring and said

restricting member are one integral member.